

to an incoming signal and releases a voltage pulse whenever the signal's dynamic level exceeds an adjustable threshold. The voltage pulse can then be used to make envelope generators, sequencers, or sample-hold devices operate.

Sequencer—Device which allows the user to pre-set a series of voltage levels which will be usable one at a time as a built-in "clock" switches from one to another down the line. Normally, these voltages are used to control oscillators, producing a series of pitches. The pattern can repeat at any tempo, yielding an ostinato.

Synthesizer—A collection of devices for producing, shaping, and amplifying sounds (oscillators, noise generators, filters, amplifiers) along with the necessary devices for controlling these (keyboards, sequencers, envelope generators, etc.). Available in different sizes depending upon how many and what kinds of modules are included and varying in the degree of control the user has over them.

Timing Pulse Generator—The "clock" of a synthesizer, which basically is a voltage turning on and off (zero volts). When the clock switches "on", an envelope generator can be made to produce its pattern, a sequencer can be made to go to the next note, or a sample-hold can be made to also proceed in its rhythmic pattern.

Trigger—One of the individual pulses produced by a Timing Pulse Generator. A single pulse is also produced by most synthesizer keyboards and is available at a specially labeled jack. The pads or heads of most percussion synthesizers are rigged to switches which provide the same kind of voltage burst.

VCA (Voltage Controlled Amplifier)—An amplifier whose output can be controlled externally by other pieces of equipment (as well as manually). The larger (the more positive) the voltage fed into its control jack, the greater its power output will be.

VCF (Voltage Controlled Filter)—A filter whose cutoff point can be controlled externally by other pieces of equipment (as well as manually). The larger (the more positive) the voltage fed into its control jack, the higher the cutoff frequency will be.

VCO (Voltage Controlled Oscillator)—An oscillator whose pitch can be controlled externally by other pieces of equipment (as well as manually). The larger (the more positive) the voltage fed into its control jack, the higher the pitch will be.

A Look At The Manufacturers Of Electronic Percussion Instruments

by Bob Saydlowski, Jr.
Professional Drum Set Artist

Recently, the percussion industry has seen a tremendous growth of electronics solely designed for drummers. Manufacturers seem to be battling for the best design, the best sounds — the best electronic drum. Let's take a look at what these companies have to offer.

SYNARE

The Synare Company currently makes seven different drum synthesizers along with an interfacing Sequencer unit. All their synths have black metal casings, are self-contained and touch-sensitive.

For the drummer who wants to experiment with synthesized sounds, but cannot afford a lot, the "Sensor" clamps to any drum rim, turning that drum into an electronic drum. Hitting the drumhead, rim, or even the shell, relays through a pickup in the clamp, allowing the natural acoustic sound of the instrument to be heard along with the synth effect. The "Sensor" is battery-powered and can also be switched on and off with an optional footswitch. The effects are somewhat limited: straight tone pitches, modulating pitches, and the famous "sweeping tomtom sound." Sensitivity can be adjusted, but beware if you are using the "Sensor," on your mounted toms. At times, the synth can be triggered off by vibrations from the bass drum and tomtom holder.

The "S3X" has a much wider variety of sounds, having five presets along with the front control knob panel. The presets give the "sweeping tom" sound with or without modulation, chimes, white noise (for surf or wind), and dual oscillation (for harmonized notes); all can be turned at the control panel, and decay can be varied. The front controls may be used by themselves, having double oscillators, noise, pitch bend up or down, and a filter. The sustain of an effect can vary from staccato to long sustain and fade. The "S3X" is AC-powered and has a gum rubber pad serving as the playing surface. Percussion-related sounds can be had, as well as straight pitches and synthesizer-type effects.

Synare's "S4" is basically a scaled-down version of the "S3X," having an 8" real drumhead, and no presets. It's capable of the more popular sounds including sweep and vibrato.

The "Sequencer" is available to interface with the "S3X" or "S4" capable of memorizing one to four 32-note rhythm sequences programmed in by the user. On playback, these patterns may be combined or varied in tempo. The drummer can play on any of his Synares while the "Sequencer" is playing its stored patterns back. Live performance with the unit could be a burden, as all memory is cleared when the power is shut off, causing the player to have to re-program every time.

Synare's recent big breakthrough has been getting away from drum synths that produce un-percussive sounds, to units that duplicate sounds of real percussion instruments. The Tympani, Bass Drum and Hi & Lo Toms are all AC-powered, have 8" drumheads with mirror dots, and like the "S3X" and "S4" have their controls mounted along their shells.

The Tympani creates realistic tympani sounds either dropping in pitch, rising in pitch, or straight tuned. A footpedal is available to duplicate setting the pitch like a mechanical tympani. Recording studios should really appreciate the Tympani for its compactness and ease of operation, and, any kit drummer who has ever wanted to add a few tympani into his existing set-up should definitely look into these, as they sure beat hauling a couple of Dresdens around, and at 1/4 the price! Surely there are some who argue that nothing compares with a genuine tympani, but for others, it's the answer to a dream.

Synare's Bass Drum has three preset sounds ranging from a tight, punchy studio drum to a deeper, fuller sound. It is also capable of double, triple and repeating bass effects, also by a preset knob. Sustain is adjustable, as is tuning, and the unit will also mount on the special Synare bass drum stand for footpedal use. However, the Bass Drum only seems to be really useful as a replacement for an existing bass drum. Perhaps a fully-synthesized drum kit would warrant its use more.

The Hi & Lo Toms have the facility to allow the drummer to produce ascending or descending runs on a single drum. An optional footswitch can reset the starting point of the run at any time. The sounds don't actually approach real tomtoms, but can come sort of close.

Synare is presently working on other simulators including an Electronic Cymbal, Snare, and Marimba!

SYNDRUM

Syndrum started all the talk of the electronic "tom" sound when they came out with their 4-drum package with outboard control box. Supposedly capable of creating over 50,000 sounds, the Syndrums you've been hearing most have been used for that "sweeping tom" sound only. Ralph Mac Donald has put the Syndrum to more extensive work on his album *The Path* (Marlin 2210). In addition to the Quad set-up, Syndrum also has a Double and Single synth unit; both using the 8" polycarbon shell drums with Duraline drumheads, and separate control brain, like the Quad. They are the most popular of all drum synths in the Studios due to their high recording quality and Lo-Impedance outputs.

Syndrum also has the "CM" self-contained synth drum with controls along its shell like the Synares. The "CM" is capable of producing the popular tomtom sound, as well as pitched tones. If tuning is set high enough, and decay low enough, woodblock and bongo-type sounds can be had. All the Syndrum units are AC-powered and stands are available separately.

PEARL SYNCUSSION

Pearl is the only major drum manufacturer to get into electronic percussion. Syncussion utilizes two real wood shell drums with coated heads and sealed bottoms. The drums hook into a separate control board which in addition to having slider controls for tuning, sweep, volume, noise and LFO to produce vibratos, snare drums, bass drums, toms, space guns, and the like, has six preset sounds. The board also has a built-in "sample and hold" feature allowing a Syncussion drum to produce scale tones or random notes with each successive hit. Microphones may also be plugged into the board to trigger sounds off your own drums. The unit is player-designed and it has, what I think to be, the best straight tomtom duplication of all the drum synths. Stands are included for both the drums and control board, as is a carrying case. Best of all, the drums can be had in any Pearl finish, allowing them to match the rest of your kit, instead of looking like monsters from outerspace.

ELECTRO-HARMONIX

The major effect-pedal manufacturer

is also now producing electronic percussion. All their units are flat metal boxes with a rubber pad adhered on top. Controls are also on the face of the casings. The "Space Drum" and "Super Space Drum" create the sweeping tom sound, again, and limited other effects. The "Crash Pad" is a noise generator for snare, surf, and gunshots. "Rolling Thunder" recreates cannons, thunder and blasts. In fact, most of their units are sound effect producers, rather than percussion devices. The Electro-Harmonix products mount on any cymbal or Roto-Tom stand.

SIMMONS

New to the U.S. market is Simmons, a British-based company. Their "SDS3" and "SDS Combo" combine features of Syndrum and Pearl Syncussion. Both models have external control boards; the "SDS3" being 4-channel, the Combo, 2-channel. The drums are similar to Syndrum, and also have genuine heads. They are attached to each other in pairs by a spacing piece. A great variety of effects is obtainable, and the units will also trigger by microphones aimed at any percussive source (drum, cymbal, practice pad, table...) allowing combination of acoustic and electronic sounds. The board also has a control for "Impact Click" which is variable for the degree of attack sound when the stick hits the "SDS" drum.

Simmons has come the closest of all to producing a fully-synthesized kit of drums with their brand new "SDS Five." The "SDS Five" is modular with an outboard rack-mount brain. The memories can store sounds that the user programs in, or, the drums can be programmed to play themselves through any sequencer or computer. Modules available at the moment are bass drum, tomtoms, snare drum, and hi-hat. The hi-hat pad even "opens" and "closes" via a foot-operated pedal! They all have four present sounds; the memory can store up to seven. The drum pads themselves are plexiglass, available in hexagon, heart, or bat-wing shapes, with other shapes to order. The whole idea of the "SDS Five," from what I can gather, is to come as close as possible to duplicating any traditional drum sound, while enabling the player to be amplified equally with his fellow band members without using mics that tend to get in the way. The "SDS Five" is not yet available in the USA, but should be in the future. The price in England is listed at £1,200, and if my translation is correct, it's pretty expensive. But at least, a big step is made towards having electronic percussion instruments rather than

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synthesizers with over-used, boring sounds. By the way, Simmons also makes the ClapTrap—a handclap synthesizer producing group handclaps. (Ideal for disco groups, and low-budget studios!)

The future of electronic drums? Imagine having a fully electronic drum kit on stage next to your traditional one! Synare has moved into the realm of making simulators at a lower cost in comparison with the real thing, and at the same time, increasing portability. Realistic-sounding synth drum kits (like the "Simmons Five") will be found more and more in recording studios because of practically no chance of leakage into other microphones, giving a more controllable sound. Perhaps composers will be incorporating specific electronic drum sounds into their works. For a time, electronic drums were getting to be a dying fad — everyone was bored with the same old sounds — but now, manufacturers with their eyes toward the future seem to be starting the revolution all over again.



Bob Saydlowski, Jr., resides in Pittsfield, MA, and has been playing percussion for 15 years. He has played in rock groups, jazz groups, lounge groups, big bands, pit bands, and is currently active in studio recording. He teaches privately and has contributed articles to several leading publications.

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